Exactol® Crank-Operated Benders Models 412/424

These portable benders are vise or bench mountable for easy action and fast accurate bending to 180°. Two models are available to bend tube sizes 4 (1/4") through 24 (1 1/2"). Exactol benders are designed with a worm-gear drive with a 60 to 1 gear ratio to allow accurate bending with minimum effort. They bend aluminum, copper, annealed steel and annealed stainless steel without kinks or wrinkles. Easy crank operation permits continuous production without excessive operator fatigue; for use in tube fabrication shops, in the field, or in factory maintenance departments.

A video (on DVD) is included to provide proper instructions for use.



Fig. S10 — 412 Bender

Exactol® Model 412

The Exactol Model 412 will bend tube from size 4 (1/4") through size 12 (3/4") and 6mm through 20mm inclusive and is completely portable. Accessories include a sturdy metal carrying case, which accommodates the 412 bender, slide block, and selected radius blocks. See page S7 for wall thickness capabilities. May be held in a vise or bench mounted using the bench mounting adapter. Bulletin 4391-B400S and DVD are included with bender, which describe the operation in detail.

NOTE: The 412 must be bench mounted if mandrels are used.

COMPONENTS REQUIRED

The minimum components required are a Model 412 Bender with a slide block and a radius block which match the tube O.D. to be bent.

Part Name	Part No.
Exactol Model 412 Bender (for 1/4" through 3/4" O.D.)	. 560569
Slide Block (for sizes 4-5-6-8-10-12)	. 550585
Slide Block (for sizes 6mm-8mm-12mm-12mm-14mm)	. 820091
Slide Block (for sizes 15mm-16mm-18mm-20mm)	. 820092
Radius Blocks (for sizes 4-5-6-8-10-12 and 6mm thru 38mm)	See pages S10 - S11

OPTIONAL ACCESSORIES

Carrying Case

Mandrel Bending Components



Fig. S11 — Slide Block



Fig. S12 — Bench Mount Adapter

Exactol® Model 412 Kit

This 412 kit contains all the basic tool requirements for bending tube from 1/4" through 3/4".

Part No. 412 KIT

The following part numbers are included in the kit:

Part Name	Part No.
Exactol Model 412 Bender	. 560569
Carrying Case	. 550572
Slide Block for 1/4" through 3/4" tube	. 550585
Radius Block – 1/4" O.D. tube	. 550579
Radius Block – 3/8" O.D. tube	. 550581
Radius Block – 1/2" O.D. tube	. 550582
Radius Block – 5/8" O.D. tube	. 550583
Radius Block – 3/4" O.D. tube	. 550584



Fig. S13 — 412 Kit

Exactol® Model 424

The Exactol Model 424 will bend tube from size 4 (1/4" O.D.) through size 24 (1 1/2" O.D.) and 6mm through 38mm inclusive. See page S7 for wall thickness capabilities. It is completely portable and may be vise or bench mounted. Bulletin 4391-B400S and video are included with the bender, which describe the operation in detail.

NOTE: The 424 must be bench mounted if mandrels are used.

A video (on DVD) is included to provide proper instructions for use.

COMPONENTS REQUIRED

The minimum components required are a Model 424 Bender with a slide block and a radius block that match the tube O.D. to be bent.

Part Name Exactol Model 424 bender (for 1/4" through 1 1/2" O.D.)	550585 621045 870150 820091 820092 820093 820094 870150
OPTIONAL ACCESSORIES Bench Mounting Adapter Mandrel Bending Components for 412 and 424 Benders	631156



Fig. S14 — 424 Bender



Fig. S15 — Slide Block



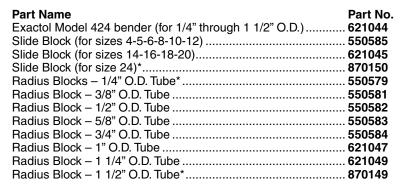
Fig. S16 — Bench Mount Adapter



Exactol® Model 424 Kit

Part No. 424 Kit

This 424 Kit contains all the basic tool requirements for bending tube from 1/4" through 1 1/2". The following part numbers are included in the kit:



^{*} Items not shown in the photo, but which are included in the 424 Kit.



Fig. S17 — 424 Kit

Radius Blocks

For use with Exactol Models 412/424 benders.

The 412 and 424 bender radius blocks have built in tube clamps, therefore separate clamp blocks are not required. The radius blocks are interchangeable within bender size ranges. Close bend radius blocks utilize the small bend radii, but also allow the bend to begin closer to the end connection.

412 and 424 Bender - Small Radius Blocks

Size	Tube O.D. (in.)	Bend Radius (in.)	Part No.
4	1/4	9/16	550573
5	5/16	11/16	550574
6	3/8	15/16	550575
8	1/2	1 1/4	550576
10	5/8	1 1/2	550577
12	3/4	1 3/4	550578



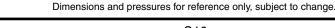
Fig. S18 — Small Radius Block

412 and 424 Bender – Large Radius Blocks

Size	Tube O.D. (in.)	Bend Radius (in.)	Part No.
Size	(111.)	` ,	
4	1/4	3/4	550579
5	5/16	1	550580
6	3/8	1 1/4	550581
8	1/2	2	550582
10	5/8		550583
12	3/4	3	550584
14	7/8		621046
16	1	4	621047
18	1 1/8	4 1/2	621048
20	1 1/4	5	621049
24	1 1/2	5	870149



Fig. S19 — Large Radius Block





412 and 424 Bender - Close Bend Radius Blocks

Size	Tube O.D. (in.)	Bend Radius (in.)	Part No.
8	1/2	1 1/4	590533
10	5/8	1 1/2	590535
12	3/4	1 3/4	590537



Fig. S20 — Close Bend Radius Block

412 and 424 Bender - Metric Radius Blocks

Tube O.D. (mm)	Bend Radius (mm)	Part No.
` '	` '	
6		820090-6mm
8		820090-8mm
10	24	820090-10mm
12	32	820090-12mm
14	38	820090-14mm
15	38	820090-15mm
16	38	820090-16mm
18	44	
20	44	820090-20mm
22	89	820090-22mm
25	102	820090-25mm
28	102	820090-28mm
30	127	820090-30mm
32	127	820090-32mm
35	127	820090-35mm
38	127	870419



Fig. S21 — Radius Block

Close Bend Adapters for Seal-Lok

These adapters are used when bends are needed close to the end of the tube after the flange has been made or the sleeve has been brazed onto the end of the tube.

HOW TO USE: Screw the Seal-Lok adapter into the internal thread* of the threaded pin on the radius block. Then attach the flanged or brazed tube by threading the tube nut to the Seal-Lok adapter on the radius block threaded pin.

* If the threaded pin does not have an internal thread, a new threaded pin is required.

Tube O.D. (in.)	Description	Part No.
1/2	Seal-Lok Adapter	. 930421-8
5/8	Seal-Lok Adapter	. 930421-10
3/4	Seal-Lok Adapter	. 930421-12
1	Seal-Lok Adapter	. 930421-16
1 1/4	Seal-Lok Adapter	. 930421-20
1 1/2	Seal-Lok Adapter	. 930421-24
1/2	Threaded Pin (for Close Bend Radius Blocks)	. 930420-8
5/8	Threaded Pin (for Close Bend Radius Blocks)	. 930420-10
3/4	Threaded Pin (for Close Bend Radius Blocks)	. 930420-12
1	Threaded Pin (for Close Bend Radius Blocks)	. 930420-16
1 1/4	Threaded Pin (for Close Bend Radius Blocks)	. 930420-20
1 1/2	Threaded Pin (for Close Bend Radius Blocks)	. 930420-24



Fig. S22 — Seal-Lok Close Bend Adapter

Dimensions and pressures for reference only, subject to change.

